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<input type="checkbox"/>	L9	(L7 AND L8)	25
<input type="checkbox"/>	L8	transdifferentiation	171
<input type="checkbox"/>	L7	astrocyte	4463
<input type="checkbox"/>	L6	L5 AND transdifferentiation	17
<input type="checkbox"/>	L5	L4 AND astrocyte	1413
<input type="checkbox"/>	L4	435/325,363,366,368.CCLS.	16676
<input type="checkbox"/>	L3	Salin-Nordstrom-T.IN.	0
<input type="checkbox"/>	L2	Salin-Nordstrom.IN.	1
<input type="checkbox"/>	L1	(Salin-Nordstrom-Tuija.IN.)	0

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=> s astrocyte
55 FILES SEARCHED...
L1 168587 ASTROCYTE

=> s transdifferentiation
59 FILES SEARCHED...
L2 25041 TRANSDIFFERENTIATION

=> s L1 AND L2
60 FILES SEARCHED...
L3 110 L1 AND L2

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DRUGMONOG2, IMSRESEARCH, FEDRIP, FOREGE, GENBANK, IMSPRODUCT, KOSMET,
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L4 55 DUP REM L3 (55 DUPLICATES REMOVED)

=> D L4 1-55

L4 ANSWER 1 OF 55 USPATFULL on STN
N 2004:150954 USPATFULL
I Methods for treating disorders of neuronal deficiency with bone
marrow-derived cells
N Blau, Helen M., Menlo Park, CA, UNITED STATES
Brazelton, Timothy, Cupertino, CA, UNITED STATES
Weimann, James M., Palo Alto, CA, UNITED STATES
PA The Board of Trustees of the Leland, Palo Alto, CA (U.S. corporation)
I US 2004115175 A1 20040617
I US 2003-688747 A1 20031016 (10)
LI Continuation-in-part of Ser. No. US 2001-993045, filed on 13 Nov 2001,
PENDING
PRAI US 2000-247128P 20001110 (60)
DT Utility
S APPLICATION
N.CNT 2455
NCL INCLM: 424/093.700
CL NCLM: 424/093.700
C [7]
ICM: A61K045-00

L4 ANSWER 2 OF 55 USPATFULL on STN
N 2004:140277 USPATFULL
I Multipotent adult stem cells, sources thereof, methods of obtaining
same, methods of differentiation thereof, methods of use thereof and
cells derived thereof
N Furcht, Leo T, Minneapolis, MN, UNITED STATES
Verfaillie, Catherine M, St Paul, MN, UNITED STATES
Reyes, Morayma, Minneapolis, MN, UNITED STATES
I US 2004107453 A1 20040603
I US 2004-467963 A1 20040105 (10)
WO 2002-US4652 20020214
T Utility
S APPLICATION
N.CNT 4100
NCL INCLM: 800/018.000
INCLS: 424/093.700; 800/021.000; 435/353.000; 435/354.000; 435/366.000
CL NCLM: 800/018.000
NCLS: 424/093.700; 800/021.000; 435/353.000; 435/354.000; 435/366.000
C [7]
ICM: A01K067-027
ICS: C12N005-06; C12N005-08
AS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 55 USPATFULL on STN
N 2004:113656 USPATFULL
I Immune privileged cells for delivery of proteins and peptides
N John, Constance Mary, San Francisco, CA, UNITED STATES
I US 2004086494 A1 20040506
I US 2001-941398 A1 20010828 (9)
LI Continuation-in-part of Ser. No. US 1998-131501, filed on 9 Aug 1998,
ABANDONED Continuation-in-part of Ser. No. US 1996-726531, filed on 7

Oct 1996, ABANDONED
Utility
APPLICATION
N.CNT 4805
INCL INCLM: 424/093.210
INCLS: 435/366.000
NCLM: 424/093.210
NCLS: 435/366.000
[7]
ICM: A61K048-00
ICS: C12N005-08
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 4 OF 55 USPATFULL on STN
AN 2004:82751 USPATFULL
TI Neurogenesis from hepatic stem cells
IN Petersen, Bryon E., Gainesville, FL, UNITED STATES
Deng, Jie, Gainesville, FL, UNITED STATES
PI US 2004063202 A1 20040401
AI US 2003-651829 A1 20030828 (10)
PRAI US 2002-406513P 20020828 (60)
DT Utility
ES APPLICATION
N.CNT 633
INCL INCLM: 435/368.000
NCLM: 435/368.000
[7]
ICM: C12N005-08
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 5 OF 55 USPATFULL on STN
AN 2004:30644 USPATFULL
I Proteins and nucleic acids encoding same
CN Spytek, Kimberly A., New Haven, CT, UNITED STATES
Li, Li, Branford, CT, UNITED STATES
Wolenc, Adam R., New Haven, CT, UNITED STATES
Vernet, Corine, North Branford, CT, UNITED STATES
Eisen, Andrew J., Rockville, MD, UNITED STATES
Liu, Xiaohong, Lexington, MA, UNITED STATES
Malyankar, Uriel M., Branford, CT, UNITED STATES
Shimkets, Richard A., Guilford, CT, UNITED STATES
Tchernev, Velizar, Branford, CT, UNITED STATES
Spaderna, Steven K., Berlin, CT, UNITED STATES
Gorman, Linda, Branford, CT, UNITED STATES
Kekuda, Ramesh, Norwalk, CT, UNITED STATES
Patturajan, Meera, Branford, CT, UNITED STATES
Gusev, Vladimir Y., Madison, CT, UNITED STATES
Gangolli, Esha A., Madison, CT, UNITED STATES
Guo, Xiaojia (Sasha), Branford, CT, UNITED STATES
Shenoy, Suresh G., Branford, CT, UNITED STATES
Rastelli, Luca, Guilford, CT, UNITED STATES
Casman, Stacie J., North Haven, CT, UNITED STATES
Boldog, Ferenc L., North Haven, CT, UNITED STATES
Burgess, Catherine E., Wethersfield, CT, UNITED STATES
Edinger, Shlomit R., New Haven, CT, UNITED STATES
Ellerman, Karen, Branford, CT, UNITED STATES
Gunther, Erik, Branford, CT, UNITED STATES
Smithson, Glennda, Guilford, CT, UNITED STATES
Millet, Isabelle, Milford, CT, UNITED STATES
MacDougall, John R., Hamden, CT, UNITED STATES
I US 2004022781 A1 20040205
I US 2001-38854 A1 20011231 (10)
RAI US 2000-258928P 20001229 (60)
US 2001-259415P 20010102 (60)
US 2001-259785P 20010104 (60)
US 2001-269814P 20010220 (60)
US 2001-279832P 20010329 (60)
US 2001-279833P 20010329 (60)
US 2001-279863P 20010329 (60)
US 2001-283889P 20010413 (60)
US 2001-284447P 20010418 (60)
US 2001-286683P 20010425 (60)
US 2001-294080P 20010529 (60)
US 2001-312915P 20010816 (60)
US 2001-313325P 20010817 (60)
US 2001-322699P 20010917 (60)

US 2001-333350P 20011126 (60)
 DT Utility
 FS APPLICATION
 LN.CNT 19237
 INCL INCLM: 424/130.100
 INCLS: 435/006.000; 435/069.100; 435/320.100; 435/325.000; 435/007.200;
 530/350.000; 536/023.100; 530/388.250
 NCL NCLM: 424/130.100
 NCLS: 435/006.000; 435/069.100; 435/320.100; 435/325.000; 435/007.200;
 530/350.000; 536/023.100; 530/388.250
 IC [7]
 ICM: C12Q001-68
 ICS: G01N033-53; G01N033-567; C07H021-04; A61K039-395; C12P021-02;
 C12N005-06; C07K014-47; C07K016-22
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 6 OF 55 USPATFULL on STN
 AN 2004:41477 USPATFULL
 TI Laminin 5, 13 and 14 and uses thereof
 IN Brunken, William J., Canton, MA, United States
 Libby, Richard R., Hingham, MA, United States
 Hunter, Dale D., Canton, MA, United States
 Burgeson, Robert E., Marblehead, MA, United States
 PA The General Hospital Corporation, Boston, MA, United States (U.S.
 corporation)
 PI US 6693169 B1 20040217
 AI US 1999-415625 19991012 (9)
 PRAI US 1998-104430P 19981015 (60)
 US 1998-104044P 19981013 (60)
 DT Utility
 FS GRANTED
 LN.CNT 2123
 INCL INCLM: 530/350.000
 INCLS: 530/362.000
 NCL NCLM: 530/350.000
 NCLS: 530/362.000
 IC [7]
 ICM: C07K014-78
 EXF 435/320.1; 435/252.3; 435/365.1; 514/8; 536/23.1; 530/350; 530/362
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 7 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
 AN 2004:361456 CAPLUS
 TI Bone marrow ****transdifferentiation*** in brain after transplantation:
 a retrospective study
 AU Cogle, Christopher R.; Yachnis, Anthony T.; Laywell, Eric D.; Zander, Dani
 S.; Wingard, John R.; Steindler, Dennis A.; Scott, Edward W.
 CS Program in Stem Cell Biology and Regenerative Medicine, University of
 Florida Shands Cancer Center, Gainesville, FL, USA
 SO Lancet (2004), 363(9419), 1432-1437
 CODEN: LANCAO; ISSN: 0140-6736
 PB Elsevier Science Ltd.
 DT Journal
 LA English
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 AN 2004:374735 SCISEARCH
 GA The Genuine Article (R) Number: 812RW
 TI Umbilical cord blood stem cells can expand hematopoietic and neuroglial
 progenitors in vitro
 AU McGuckin C P (Reprint); Forraz N; Allouard Q; Pettengell R
 CS St George Hosp, Sch Med, King George Lab, Cranmer Terrace, London SW17
 ORE, England (Reprint); St George Hosp, Sch Med, King George Lab, London
 SW17 ORE, England; Kingston Univ, London, England; Kingston Univ, Sch Life
 Sci, Kingston upon Thames KT1 2EE, Surrey, England; St George Hosp, Sch
 Med, Dept Basic Med Sci, London, England; St George Hosp, Sch Med, Dept
 Cellular & Mol Med, London, England
 CYA England
 SO EXPERIMENTAL CELL RESEARCH, (1 MAY 2004) Vol. 295, No. 2, pp. 350-359.
 Publisher: ACADEMIC PRESS INC ELSEVIER SCIENCE, 525 B ST, STE 1900, SAN
 DIEGO, CA 92101-4495 USA.
 ISSN: 0014-4827.
 DT Article; Journal
 LA English

REC Reference Count: 57
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 DUPLICATE 2
 AN 2004:300585 BIOSIS
 DN PREV200400301616
 TI Fate of donor hematopoietic cells in demyelinating mutant mouse, twitcher,
 following transplantation of GFP+ bone marrow cells.
 AU Yagi, Takashi; McMahon, Eileen J.; Takikita, Shoichi; Mohri, Ikuko;
 Matsushima, Glenn K.; Suzuki, Kinuko [Reprint Author]
 CS Dept Pathol and Lab MedSch Med, Univ N Carolina, 919A Brinkhous Bullitt
 Bldg, CB 7525, Chapel Hill, NC, 27599, USA
 kis@med.unc.edu
 SO Neurobiology of Disease, (June 2004) Vol. 16, No. 1, pp. 98-109. print.
 ISSN: 0969-9961 (ISSN print).
 DT Article
 LA English
 ED Entered STN: 30 Jun 2004
 Last Updated on STN: 30 Jun 2004

L4 ANSWER 10 OF 55 IFIPAT COPYRIGHT 2004 IFI on STN DUPLICATE 3
 AN 10315526 IFIPAT;IFIUDB;IFICDB
 TI TRANS-DIFFERENTIATION AND RE-DIFFERENTIATION OF SOMATIC CELLS AND
 PRODUCTION OF CELLS FOR CELL THERAPIES; CONTROLLING DIFFERENTIATION IN
 SOMATIC CELLS; GENERATE PREFERENTIAL SOMATIC CELL CULTURE, INCUBATE WITH
 ENZYME INHIBITORS, MONITOR DIFFERENTIATION INTO ALTERNATE CELL TYPE
 IN Dominko Tanja; Malcuit Christopher; Page Raymond
 PA Unassigned Or Assigned To Individual (68000)
 PI US 2003059939 A1 20030327
 AI US 2002-228296 20020827
 PRAI US 2001-314654P 20010827 (Provisional)
 FI US 2003059939 20030327
 DT Utility; Patent Application - First Publication
 FS CHEMICAL
 APPLICATION
 CLMN 20
 GI 5 Figure(s).
 FIGS. 1 and 2: Cells with neuronal morphology produced by treating bovine
 fetal fibroblasts CB at 2.5-7.5 μ g/ml and culturing them under
 conditions that induce neural differentiation. The cells in FIG. 1 were
 observed with phase contrast microscopy; those in FIG. 2 were observed by
 DIC. FIG. 1: (A) Control, (B) 2.5 μ g/ml, (C) 5.0, μ g/ml, (D) 7.5 μ
 g/ml
 FIGS. 3 and 4: Cells with neuronal morphology produced by treating bovine
 adult fibroblasts CB at 10.0 μ g/ml and culturing them under conditions
 that induce neural differentiation.
 FIG. 5: Cells with neuronal morphology produced by treating human fetal
 fibroblasts CB at 5.0 μ g/ml and culturing them under conditions that
 induce neural differentiation.
 (A) Control, (B) 2.5 μ g/ml, (C) 5.0 μ g/ml, (D) 7.5 μ g/ml
 FIG. 6: Photographs showing the presence of neural-specific markers nestin
 and Tuj1 in human fetal fibroblasts treated with CB at 5.0 μ g/ml and
 cultured under conditions that induce neural differentiation.

L4 ANSWER 11 OF 55 USPATFULL on STN
 AN 2003:312269 USPATFULL
 TI Stem cell-like cells
 IN Kruijer, Wiebe, Leusden, NETHERLANDS
 PI US 2003219866 A1 20031127
 AI US 2003-349505 A1 20030121 (10)
 RLI Continuation of Ser. No. WO 2001-NL561, filed on 20 Jul 2001, UNKNOWN
 PRAI EP 2000-202634 20000721
 DT Utility
 FS APPLICATION
 LN.CNT 1309
 INCL INCLM: 435/069.100
 INCLS: 435/320.100; 435/366.000; 530/350.000; 536/023.500
 NCL NCLM: 435/069.100
 NCLS: 435/320.100; 435/366.000; 530/350.000; 536/023.500
 IC [7]
 ICM: C07K014-475
 ICS: C07H021-04; C12P021-02; C12N005-08
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 12 OF 55 USPATFULL on STN

2003:276702 USPATFULL
 Phenotypic screen of chimeric proteins
 Kim, Jin-Soo, Yuseong-gu, KOREA, REPUBLIC OF
 Park, Kyung-Soon, Yuseong-gu, KOREA, REPUBLIC OF
 Lee, Dong-Ki, Yuseong-gu, KOREA, REPUBLIC OF
 Seol, Wongi, Yuseong-gu, KOREA, REPUBLIC OF
 Lee, Horim, Chungcheongnam-do, KOREA, REPUBLIC OF
 Lee, Seong-Il, Yuseong-gu, KOREA, REPUBLIC OF
 Yang, Hyo-Young, Yuseong-gu, KOREA, REPUBLIC OF
 Lee, Yangsoon, Yuseong-gu, KOREA, REPUBLIC OF
 Jang, Young-Soon, Yuseong-gu, KOREA, REPUBLIC OF
 US 2003194727 A1 20031016
 US 2002-314669 A1 20021209 (10)
 US 2001-338441P 20011207 (60)
 US 2002-376053P 20020426 (60)
 US 2002-400904P 20020802 (60)
 US 2002-401089P 20020805 (60)
 Utility
 APPLICATION
 5577
 INCLM: 435/006.000
 INCLS: 435/069.100; 435/320.100; 435/325.000; 435/252.300; 435/007.200;
 435/254.200; 435/219.000
 NCLM: 435/006.000
 NCLS: 435/069.100; 435/320.100; 435/325.000; 435/252.300; 435/007.200;
 435/254.200; 435/219.000
 [7]
 ICM: C12Q001-68
 ICS: G01N033-53; G01N033-567; C12N001-18; C12P021-02; C12N001-21;
 C12N005-06
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ANSWER 13 OF 55 USPATFULL on STN
 2003:265424 USPATFULL
 Self-renewing pluripotent hepatic stem cells
 Nakauchi, Hiromitsu, Ibaraki, JAPAN
 Suzuki, Atsushi, Ibaraki, JAPAN
 Taniguchi, Hideki, Ibaraki, JAPAN
 Fukao, Katashi, Ibaraki, JAPAN
 US 2003186439 A1 20031002
 US 2002-93311 A1 20020306 (10)
 Utility
 APPLICATION
 1832
 INCLM: 435/370.000
 NCLM: 435/370.000
 [7]
 ICM: C12N005-08

ANSWER 14 OF 55 USPATFULL on STN
 2003:119670 USPATFULL
 Stem cells of the islets of langerhans and their use in treating
 diabetes mellitus
 Habener, Joel F., Newton Centre, MA, UNITED STATES
 Zulewski, Henryk, Basel, SWITZERLAND
 Thomas, Melissa K., Boston, MA, UNITED STATES
 Abraham, Elizabeth J., Quincy, MA, UNITED STATES
 Vallejo, Mario, Madrid, SPAIN
 Leech, Colin A., Boston, MA, UNITED STATES
 Nolan, Anna Louise, Brookline, MA, UNITED STATES
 Lechner, Andreas, Boston, MA, UNITED STATES
 US 2003082155 A1 20030501
 US 2002-120687 A1 20020411 (10)
 Continuation-in-part of Ser. No. US 2000-731261, filed on 6 Dec 2000,
 PENDING Continuation-in-part of Ser. No. US 2001-963875, filed on 26 Sep
 2001, PENDING
 US 1999-169082P 19991206 (60)
 Utility
 APPLICATION
 3060
 INCLM: 424/093.210
 INCLS: 435/366.000
 NCLM: 424/093.210
 NCLS: 435/366.000
 [7]
 ICM: A61K048-00

ICS: C12N005-08
AS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 15 OF 55 USPATFULL on STN
N 2003:51122 USPATFULL
I Gene expression alterations underlying the retardation of aging by
N caloric restriction in mammals
Weindruch, Richard H., Madison, WI, UNITED STATES
Prolla, Tomas A., Madison, WI, UNITED STATES
Lee, Cheol-Koo, Madison, WI, UNITED STATES
Kayo, Tsuyoshi, Madison, WI, UNITED STATES
I US 2003036079 A1 20030220
I US 2002-178296 A1 20020624 (10)
RAI US 2001-300949P 20010626 (60)
T Utility
S APPLICATION
N.CNT 2422
NCL INCLM: 435/006.000
INCLS: 435/007.210
CL NCLM: 435/006.000
NCLS: 435/007.210
C [7]
ICM: C12Q001-68
ICS: G01N033-567

AS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 16 OF 55 USPATFULL on STN
N 2003:44347 USPATFULL
I Stem cells and their use in transplantation
N Habener, Joel F., Newton Centre, MA, UNITED STATES
Zulewski, Henryk, Basel, SWITZERLAND
Abraham, Elizabeth J., Quincy, MA, UNITED STATES
Vallejo, Mario, Madrid, SPAIN
Faustman, Denise L., Weston, MA, UNITED STATES
Thomas, Melissa K., Boston, MA, UNITED STATES
A Massachusetts General Hospital (U.S. corporation)
I US 2003031657 A1 20030213
I US 2002-136891 A1 20020502 (10)
LI Continuation-in-part of Ser. No. US 2000-731255, filed on 6 Dec 2000,
PENDING
RAI US 1999-169082P 19991206 (60)
US 2000-215109P 20000628 (60)
US 2000-238880P 20001006 (60)
T Utility
S APPLICATION
N.CNT 2495
NCL INCLM: 424/093.210
INCLS: 424/093.700
CL NCLM: 424/093.210
NCLS: 424/093.700
C [7]
ICM: A61K048-00

AS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 17 OF 55 USPATFULL on STN
N 2003:228267 USPATFULL
I Progenitor cells and methods and uses related thereto
N Lu, Kuanghui, Brookline, MA, United States
Pang, Kevin, Canton, MA, United States
Rubin, Lee, Wellesley, MA, United States
A ES Cell International Pte Ltd., SINGAPORE (non-U.S. corporation)
I US 6610535 B1 20030826
I US 2000-724632 20001128 (9)
LI Continuation-in-part of Ser. No. US 2000-635370, filed on 9 Aug 2000
Continuation-in-part of Ser. No. US 2000-499362, filed on 10 Feb 2000,
now patented, Pat. No. US 6326201
T Utility
S GRANTED
N.CNT 3624
NCL INCLM: 435/325.000
INCLS: 435/363.000; 435/366.000; 435/372.200; 435/375.000; 435/377.000;
435/384.000; 435/387.000; 435/391.000; 435/392.000
CL NCLM: 435/325.000
NCLS: 435/363.000; 435/366.000; 435/372.200; 435/375.000; 435/377.000;
435/384.000; 435/387.000; 435/391.000; 435/392.000
C [7]

ICM: C12N005-00
 ICS: C12N005-06
 EXF 435/325; 435/363; 435/366; 435/372.2; 435/375; 435/377; 435/384;
 435/387; 435/391; 435/392

4 ANSWER 18 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
 AN 2003:412372 SCISEARCH
 SA The Genuine Article (R) Number: 674HH
 I Preservation of hematopoietic properties in transplanted bone marrow cells
 AU in the brain
 Ono K; Yoshihara K; Suzuki H; Tanaka K F; Takii T; Onozaki K; Sawada M
 (Reprint)
 CS Fujita Hlth Univ, Joint Res Div Therapies Against Intractable Dis, Inst
 Comprehens Med Sci, Joint Res Div, Therapies Against Intractable Dis,
 Toyoake, Aichi 4701192, Japan (Reprint); Nagoya City Univ, Grad Sch
 Pharmaceut Sci, Dept Mol Hlth Sci, Nagoya, Aichi, Japan
 CYA Japan
 O JOURNAL OF NEUROSCIENCE RESEARCH, (15 MAY 2003) Vol. 72, No. 4, pp.
 503-507.
 Publisher: WILEY-LISS, DIV JOHN WILEY & SONS INC, 605 THIRD AVE, NEW YORK,
 NY 10158-0012 USA.
 ISSN: 0360-4012.
 Article; Journal
 T English
 A Reference Count: 17
 EC *ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS*

4 ANSWER 19 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
 N 2003:894280 SCISEARCH
 A The Genuine Article (R) Number: 728WA
 I Neurosurgical embryology. Part 4: What are stem-cells?
 U Kubis N (Reprint); Catala M
 S Univ Paris 06, Lab Histol & Embryol, 105 Blvd Hop, F-75634 Paris 13,
 France (Reprint); Univ Paris 06, Lab Histol & Embryol, F-75634 Paris 13,
 France; Univ Paris 06, UMR CNRS 7000, Fac Med Pitie Salpetriere, F-75634
 Paris, France; Hop Lariboisiere, Lab Explorat Fonctionnelles Syst Nerveux
 Pr Levy, F-75475 Paris, France
 YA France
 O NEUROCHIRURGIE, (SEP 2003) Vol. 49, No. 4, pp. 449-456.
 Publisher: MASSON EDITEUR, 21 STREET CAMILLE DESMOULINS, ISSY, 92789
 MOULINEAUX CEDEX 9, FRANCE.
 ISSN: 0028-3770.
 T Article; Journal
 A French
 EC Reference Count: 23
 ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

4 ANSWER 20 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
 N 2003:596776 SCISEARCH
 A The Genuine Article (R) Number: 697AT
 I Marrow stromal cells, mitosis, and neuronal differentiation: stem cell and
 precursor functions
 U Munoz-Elias G; Woodbury D; Black I B (Reprint)
 S UMDNJ, Robert Wood Johnson Med Sch, Dept Neurosci & Cell Biol, 675 Hoes
 Lane, CABM Bldg, Room 342, Piscataway, NJ 08854 USA (Reprint); UMDNJ,
 Robert Wood Johnson Med Sch, Dept Neurosci & Cell Biol, Piscataway, NJ
 08854 USA
 YA USA
 O STEM CELLS, (JUN 2003) Vol. 21, No. 4, pp. 437-448.
 Publisher: ALPHAMED PRESS, ONE PRESTIGE PLACE, STE 290, MIAMISBURG, OH
 45342-3758 USA.
 ISSN: 1066-5099.
 T Article; Journal
 A English
 EC Reference Count: 33
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4 ANSWER 21 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 N 2004:140337 BIOSIS
 N PREV200400133709
 I ***Transdifferentiation*** potential of human hematopoietic cells
 isolated from mobilized peripheral blood.
 J Kuci, Selim [Reprint Author]; Schilbach, Karin [Reprint Author];
 Handgretinger, Rupert; Buehring, Hans-Joerg [Reprint Author]; Jurecic,
 Roland; Schumm, Michael [Reprint Author]; Lang, Peter [Reprint Author];
 Niethammer, Dietrich [Reprint Author]

Hematology/Oncology, University Children's Hospital, Tuebingen, Germany
Blood, (November 16 2003) Vol. 102, No. 11, pp. 334a. print.
Meeting Info.: 45th Annual Meeting of the American Society of Hematology.
San Diego, CA, USA. December 06-09, 2003. American Society of Hematology.
CODEN: BLOOAW. ISSN: 0006-4971.
Conference; (Meeting)
Conference; (Meeting Poster)
Conference; Abstract; (Meeting Abstract)
English
Entered STN: 10 Mar 2004
Last Updated on STN: 10 Mar 2004

ANSWER 22 OF 55 BIOTECHNO COPYRIGHT 2004 Elsevier Science B.V. on STN
DUPLICATE

2003:36781698 BIOTECHNO

Astrocytes as stem cells: Nomenclature, phenotype, and
translation

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GLIA, (01 JUL 2003), 43/1 (62-69), 77 reference(s)

CODEN: GLIAEJ ISSN: 0894-1491

Journal; Article

United States

English

English

ANSWER 23 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN

2003:56696 SCISEARCH

The Genuine Article (R) Number: 629BC

Somatic plasticity of neural stem cells: Fact or fancy?

Greco B (Reprint); Recht L

Univ Massachusetts, Sch Med, Dept Neurol, 55 Lake Ave N, Worcester, MA
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JOURNAL OF CELLULAR BIOCHEMISTRY, (1 JAN 2003) Vol. 88, No. 1, pp. 51-56.

Publisher: WILEY-LISS, DIV JOHN WILEY & SONS INC, 605 THIRD AVE, NEW YORK,
NY 10158-0012 USA.

ISSN: 0730-2312.

Article; Journal

English

Reference Count: 38

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

ANSWER 24 OF 55 BIOTECHNO COPYRIGHT 2004 Elsevier Science B.V. on STN
DUPLICATE

2003:36314696 BIOTECHNO

Fetal human hematopoietic stem cells can differentiate sequentially into
neural stem cells and then ***astrocytes*** in vitro

Hao H.-N.; Zhao J.; Thomas R.L.; Parker G.C.; Lyman W.D.

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Journal of Hematotherapy and Stem Cell Research, (2003), 12/1 (23-32), 59
reference(s)

CODEN: JHERFM ISSN: 1525-8165

Journal; Article

United States

English

English

ANSWER 25 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

2004:146096 BIOSIS

PREV200400145915

Transdifferentiation of adult bone marrow stem cells into neural
cells in vitro.

Sogos, V. [Reprint Author]; Reali, C. [Reprint Author]; Scintu, F.

[Reprint Author]; Pillai, R. [Reprint Author]; Badiali, M.; Sanna, A.;

Argioli, F.

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Vol. 2003, pp. Abstract No. 789.8. <http://sfn.scholarone.com>. e-file.

Meeting Info.: 33rd Annual Meeting of the Society of Neuroscience. New

DT Orleans, LA, USA. November 08-12, 2003. Society of Neuroscience.
 Conference; (Meeting)
 Conference; Abstract; (Meeting Abstract)
 LA English
 ED Entered STN: 17 Mar 2004
 Last Updated on STN: 17 Mar 2004

L4 ANSWER 26 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 AN 2004:196055 BIOSIS
 DN PREV200400196614
 TI Definition of stem cell potential: murine embryonic and adult neural stem
 AU cells share gene expression profiles and biological properties.
 Cova, L. [Reprint Author]; Ratti, A. [Reprint Author]; Quattrone, A.;
 Mantegna, L. [Reprint Author]; Fantozzi, R. [Reprint Author]; Silani, V.
 [Reprint Author]
 CS Dept. of Neurological sci., IRCCS Ospedale Maggiore, Milan, Italy
 SO Society for Neuroscience Abstract Viewer and Itinerary Planner, (2003)
 Vol. 2003, pp. Abstract No. 242.16. <http://sfn.scholarone.com>. e-file.
 Meeting Info.: 33rd Annual Meeting of the Society of Neuroscience. New
 Orleans, LA, USA. November 08-12, 2003. Society of Neuroscience.
 DT Conference; (Meeting)
 Conference; Abstract; (Meeting Abstract)
 LA English
 ED Entered STN: 14 Apr 2004
 Last Updated on STN: 14 Apr 2004

L4 ANSWER 27 OF 55 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
 AN DUPLICATE 6
 TI 2003-08715 BIOTECHDS
 Preparing neural stem cells, useful for transplantation, e.g. for
 treating neurodegeneration e.g. in multiple sclerosis, by in vitro or in
 vivo culture of hematopoietic stem cells;
 stem cell culture for tissue engineering and cell therapy
 AU ALARCON MARTINEZ P; BONILLA JIMENEZ S; SILVA GONZALEZ A G; MARTINEZ PEREZ
 S
 PA UNIV ELCHE HERNANDEZ MIGUEL
 PI WO 2002096439 5 Dec 2002
 AI WO 2002-ES253 27 May 2002
 PRAI ES 2001-1223 28 May 2001; ES 2001-1223 28 May 2001
 DT Patent
 LA Spanish
 OS WPI: 2003-140415 [13]

L4 ANSWER 28 OF 55 IFIPAT COPYRIGHT 2004 IFI on STN DUPLICATE 7
 AN 10220601 IFIPAT;IFIUDB;IFICDB
 TI EMBRYONIC STEM CELLS AND NEURAL PROGENITOR CELLS DERIVED THEREFROM;
 REGENERATION CELLS OF NERVOUS SYSTEM
 IN Ben-Hur Tamir (IL); Pera Martin Frederick (AU); Reubinoff Benjamin Eithan
 (IL)
 PA Unassigned Or Assigned To Individual (68000)
 PI US 2002164308 A1 20021107
 AI US 2001-970543 20011004
 RLI US 2001-808382 20010314 CONTINUATION-IN-PART PENDING
 PRAI AU 2000-6211 20000314
 AU 2000-1279 20001106
 AU 2001-2920 20010206
 FI US 2002164308 20021107
 DT Utility; Patent Application - First Publication
 FS CHEMICAL
 APPLICATION
 CLMN 73
 GI 38 Figure(s).
 FIG. 1 shows phase contrast micrographs of ES cells and their
 differentiated progeny. A, inner cell mass three days after plating. B,
 colony of ES cells. C, higher magnification of an area of an ES cell
 colony. D, an area of an ES cell colony undergoing spontaneous
 differentiation during routine passage. E, a colony four days after
 plating in the absence of a feeder cell layer but in the presence of 2000
 units/ml human LIF undergoing differentiation in its periphery,. F,
 neuronal cells in a high density culture. Scale bars: A and C, 25
 microns; B and E, 100 microns; D and F, 50 microns.
 FIG. 2 shows marker expression in ES cells and their differentiated
 somatic progeny. A, ES cell colony showing histochemical staining for
 alkaline phosphatase. B, ES cell colony stained with antibody MC-813-70
 recognising the SSEA-4 epitope. C, ES cell colony stained with antibody
 TRAL-60. D, ES cell colony stained with antibody GCTM-2. E, high density

culture, cell body and processes of a cell stained with antineurofilament 68 kDa protein. F, high density culture, cluster of cells and network of processes emanating from them stained with antibody against neural cell adhesion molecule. G, high density culture, cells showing cytoplasmic filaments stained with antibody to muscle actin. H, high density culture, cell showing cytoplasmic filaments stained with antibody to desmin. Scale bars: A, 100 microns; B-D, and F, 200 microns; E, G and H, 50 microns.

FIG. 3 shows RT-PCR analysis of gene expression in ES cells and their differentiated derivatives. All panels show 1.5% agarose gels stained with ethidium bromide. A, expression of Oct-4 and b-actin in ES stem cells and high density cultures. Lane 1, 100 bp DNA ladder. Lane 2, stem cell culture, b-actin. Lane 3, stem cell culture, Oct-4. Lane 4, stem cell culture, PCR for Oct-4 carried out with omission of reverse transcriptase. Lane 5, high density culture, b-actin. Lane 6, high density culture, Oct-4. Lane 7, high density culture, PCR for Oct-4 carried out with omission of reverse transcriptase. b-actin band is 200 bp and Oct-4 band is 320 bp. B, expression of nestin and Pax-6 in neural progenitor cells that were derived from differentiating ES colonies. Left lane, 100 bp DNA ladder; lane 1, b-actin in HX 142 neuroblastoma cell line (positive control for nestin PCR); lane 2, b-actin in neural progenitor cells; lane 3, nestin in HX 142 neuroblastoma cell line; lane 4, nestin in neural progenitor cells; lane 5, nestin PCR on same sample as lane 4 without addition of reverse transcriptase; lane 6, Pax-6; lane 7, Pax-6 PCR on same sample as lane 6 without addition of reverse transcriptase. Nestin band is 208 bp, Pax-6 is 274 bp. C, expression of glutamic acid decarboxylase in cultures of neurons. Left lane, 100 bp DNA ladder; lane 1, b-actin; lane 2, b-actin PCR on same sample as lane 1 without addition of reverse transcriptase; lane 3, glutamic acid decarboxylase; lane 4 glutamic acid decarboxylase on same sample as lane 3 without addition of reverse transcriptase. Glutamic acid decarboxylase band is 284 bp. D, expression of GABA A alpha 2 receptor. Left lane, 100 bp DNA ladder; lane 1, b-actin; lane 2, GABA A alpha 2 receptor; lane 3, PCR without addition of reverse transcriptase. GABA A alpha 2 receptor subunit band is 471 bp.

FIG. 4 shows histology of differentiated elements found in teratomas formed in the testis of SCID mice following inoculation of HES-1 or HES-2 colonies. A, cartilage and squamous epithelium, HES-2. B, neural rosettes, HES-2. C, ganglion, gland and striated muscle, HES-1. D, bone and cartilage, HES-1. E, glandular epithelium, HES-1. F, ciliated columnar epithelium, HES-1. Scale bars: A-E, 100 microns; F, 50 microns.

FIG. 5 shows phase contrast microscopy and immunochemical analysis of marker expression in neural progenitor cells isolated from differentiating ES cultures. A, phase contrast image of a sphere formed in serum-free medium. B-D, indirect immunofluorescence staining of spheres, 4 hours after plating on adhesive substrate, for N-CAM, nestin, and vimentin respectively. In C and D, cells at the base of the sphere were placed in plane of focus to illustrate filamentous staining; confocal examination revealed that cells throughout the sphere were decorated by both antibodies. Scale bar is 100 microns in all panels.

FIG. 6 shows phase contrast appearance and marker expression in cultures of neurons derived from progenitor cells shown in FIG. 5. A, phase contrast micrograph of differentiated cells emanating from a sphere plated onto adhesive surface. B-H, indirect immunofluorescence microscopy of differentiated cells decorated with antibodies against 200 kDa neurofilament protein (B), 160 kDa neurofilament protein (C), MAP2a+b (D), glutamate (E), synaptophysin (F), glutamic acid decarboxylase (G) and beta-tubulin (H). Scale bars: A, ;B, 100 microns; C, 200 microns; D, 20 microns; E and F, 10 microns; G, 20 microns; H, 25 microns.

FIG. 7 shows neural precursors proliferating as a monolayer on a plastic tissue culture dish in the presence of EGF and bFGF. These monolayer cultures of proliferating cells were obtained after prolonged cultivation (2-3 weeks) of the spheres in the presence of growth factors without sub-culturing.

FIG. 8 shows phase contrast appearance of a culture consisting of differentiated neural cells.

FIG. 9 shows phase contrast appearance of a sphere that is formed 72 hours after the transfer of a clump of undifferentiated ES cells into serum free medium (Scale bar 100 microns).

FIG. 10 shows linear correlation between the volume of spheres and the number of progenitor cells within a sphere. Spheres of various diameters that were generated from differentiating ES colonies and were propagated for 14-15 weeks were disaggregated into single cell suspension and the number of cells per sphere was counted.

FIG. 11 shows indirect immunofluorescence staining of a sphere, 4 hours after plating on adhesive substrate, for N-CAM. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium

and propagation of the resulting spheres for 5 passages. (Scale bar 100 microns).

FIG. 12 shows indirect immunofluorescence membranous staining for N-CAM of single cells at the periphery of a sphere 4 hours after plating on adhesive substrate. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and propagation of the resulting spheres for 5 passages. (Scale bar 25 microns).

FIG. 13 shows indirect immunofluorescence staining of a spheres 4 hours after plating on adhesive substrate for the intermediate filament nestin. Cells at the base of the sphere were placed in plane of focus to illustrate filamentous staining. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and propagation of resulting spheres for 5 passages. (Scale bar 25 microns).

FIG. 14 shows indirect immunofluorescence microscopy of a differentiated cell decorated with antibodies against the oligodendrocyte progenitor marker O4. (Scale bar 12.5 microns).

FIG. 15 shows indirect immunofluorescence staining of a sphere 4 hours after plating on adhesive substrate for the intermediate filament vimentin. Cells at the base of the sphere were placed in plane of focus to illustrate filamentous staining. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and propagation of resulting spheres for 7 passages. (Scale bar 25 microns).

FIG. 16 shows the growth pattern of spheres that were generated directly from undifferentiated ES cells. Each bar represents the mean (+SD) increment in volume per week of 24 spheres at first to sixteen weeks after derivation. A more excessive growth rate is evident during the first 5 weeks.

FIG. 17 shows persistent growth in the volume of spheres along time. Each bar represents the mean (+SD) increment in volume per week of 24 spheres at nine to twenty one weeks after derivation. The spheres were generated from differentiating ES colonies.

FIG. 18 shows linear correlation between the volume of spheres and the number of progenitor cells within a sphere. Spheres of various diameters, that were generated directly from undifferentiated ES cells and were propagated 5-7 weeks, were disaggregated into single cell suspension and the number of cells per sphere was counted.

FIG. 19 shows RT-PCR analysis of gene expression in ES cells (a week after passage) and neural spheres derived from differentiating colonies and directly from undifferentiated ES cell. All panels show 2% agarose gels stained with ethidium bromide. Lanes 1, 2 and 3, Oct-4 in ES cell culture, neural spheres derived from differentiating colonies, neural spheres derived from undifferentiated ES cells. Lane 4, stem cell culture, PCR for Oct-4 carried out with omission of reverse transcriptase. Lanes 5, 6, and 7, nestin in ES cell culture, neural spheres derived from differentiating colonies, neural spheres derived from undifferentiated ES cells. Lane 8, stem cell culture, PCR for nestin carried out with omission of reverse transcriptase. Lanes 9, 10 and 11, Pax-6 in ES cell culture, neural spheres derived from differentiating colonies, neural spheres derived from undifferentiated ES cells. Lane 12, stem cell culture, PCR for Pax-6 carried out with omission of reverse transcriptase. Lane 13, 100 bp DNA ladder. Oct-4 band is 320 bp, nestin is 208 bp and Pax-6 is 274 bp.

FIG. 20 shows indirect immunofluorescence microscopy of differentiated *****astrocyte***** cells decorated with antibody against GFAP. (Scale bar 25 microns).

FIG. 21 shows indirect immunofluorescence microscopy of brain sections of two mice (A and B) 4 weeks after transplantation of human neural precursors prelabeled with BrDU. Cells with a nucleus decorated with anti BrDU (brown stain, black arrow) are evident near the ventricular surface (white arrow indicate mouse unstained nuclei, bar=20 microns).

FIG. 22 shows indirect immunofluorescence microscopy of brain sections of a mice 4 weeks after transplantation of human neural precursors prelabeled with BrDU. Wide spread distribution of transplanted human cells decorated by anti BrDU antibodies is evident in the periventricular areas. The periventricular area in A is demonstrated at a higher magnification in B and C. (Bars=150, 60 and 30 microns in A, B and C).

FIG. 23 shows indirect immunocytochemical microscopy of brain sections of a mice 4 weeks after transplantation of human neural precursors prelabeled with BrDU. The transplanted human cells are migrating along the rostral migratory stream (bar=150 microns).

FIG. 24 shows RT-PCR analysis of gene expression in neural spheres derived from differentiating (A) and undifferentiated (B) ES cells. All panels show 2% agarose gels stained with ethidium bromide. Lanes 1 and 10, 100 bpDNA ladder; Lane 2, CD34; Lane 3, Flk-1; lane4, HNF-3; lane 5, alfafetoprotein. Lanes 6-9 PCR reaction on the same samples as lanes 2-5 carried out with the omission of reverse transcriptase. CD-34 band is 200

bp, Flk-1 is 199, HNF-3 is 390, AFP is 340 bp.

FIG. 25 shows by RT-PCR analysis the expression of GFAP and the pip gene in differentiated cells from neural spheres derived from differentiating ES cell colonies. The expression of GFAP indicates differentiation into ***astrocytes*** while the presence of both dm-20 and pip transcripts indicate that differentiation into oligodendrocyte cells has occurred. Lanes 2, 4, 6 and lanes 3, 5, 7 are from two separate RNA samples from differentiated spheres that were independently derived from ES cells. Lane 1 and 8, 100 bp DNA ladder; Lanes 2 and 4, GFAP; lanes 3 and 5, plp and dm-20; lanes 6 and 7, PCR reaction on the same samples as lanes 3 and 5 carried out with the omission of reverse transcriptase. GFAP band is 383, pip band is 354 bp and dm-20 is 249 bp.

FIG. 26 shows a dark field stereomicroscopic photograph of areas (arrows) destined to give rise to neural precursors in a differentiating ES cell colony 3 weeks after passage (bar=1.6 mm).

FIG. 27 shows indirect immunochemical analysis of marker expression in cultures of neurons derived from progenitor cells that were derived directly from undifferentiated ES cells: A, indirect immunofluorescence microscopy of neurites decorated with antibody against 160 kDa neurofilament protein. B and C, indirect immunofluorescence staining of differentiated cells for MAP2a+b and beta-tubulin III. Scale bars: A 100 microns, B and C 10 microns.

FIG. 28 shows indirect immunochemical analysis of the expression of tyrosine hydroxylase. Neurites (A) and a differentiated cell (B) are decorated with antibodies against tyrosine hydroxylase. Scale bars: 30 microns.

FIG. 29 shows in vivo differentiation into ***astrocyte*** cells of transplanted human neural progenitors prelabeled with BrDU. Donor cells are identified by indirect immunochemical detection of BrDU (dark nuclei, arrows). Dual staining demonstrates donor cells decorated by anti GFAP (orange). Transplanted cells are migrating into the brain parenchyma (white arrow) and are also found in the periventricular zone (dark arrow) (A). A higher magnification of cells that have differentiated into ***astrocytes*** and migrated into the host brain (B).

FIG. 30 shows in vivo differentiation into oligodendrocyte cells of transplanted human neural progenitors prelabeled with BrDU. Donor cells are identified by indirect immunochemical detection of BrDU (dark nuclei, arrows). Dual staining demonstrates donor cells decorated by anti CNPase (orange).

FIG. 31 shows cumulative growth curve for human neural progenitors derived from differentiating colonies. (A) Continuous growth is evident during an 18-22 week period. The increment in the volume of the spheres was continuously monitored as an indirect measure of the increase in cell numbers. A linear positive correlation between the volume of the spheres and the number of cells within the spheres (B, insert) was maintained along cultivation. It supported the validity of monitoring the increment of sphere volume as an indirect indicator of cell proliferation.

FIG. 32 shows RT-PCR analysis of the expression of non-neural markers in human ES derived spheres. All panels show 2% agarose gels stained with ethidium bromide. The symbols + and - indicate whether the PCR reaction was performed with or without the addition of reverse transcriptase. A 1 Kb plus DNA ladder was used in all panels. beta-actin band is 291 bp, keratin is 780 bp, Flk-1 is 199 bp, CD34 is 200 bp, AC-133 is 200 bp, transferrin is 367 bp, amylase is 490 bp and alpha 1 anti trypsin is 360 bp.

FIG. 33 shows a phase contrast micrograph of differentiated cells growing out from a sphere 2 weeks after plating onto an adhesive surface and culture in the absence of growth factors. Scale bar is 200 μ m.

FIG. 34 shows RT-PCR analysis of the expression of neuronal and glial markers in differentiated cells originating from human ES derived neural spheres. All panels show 2% agarose gels stained with ethidium bromide. The symbols + and - indicate whether the PCR reaction was performed with or without the addition of reverse transcriptase. A 1 Kb plus DNA ladder was used in all panels. Plp and dm-20 bands are 354 bp and 249 bp respectively, MBP is 379 bp, GFAP is 383 bp, NSE is 254 bp and NF-M is 430 bp.

FIG. 35 shows indirect immunochemical analysis of the expression of serotonin (A) and GABA (B). Scale bars are 20 μ m.

FIG. 36 shows dissemination of transplanted BrdU+ human ES derived neural progenitor cells in the mouse host brain.

(A) At 2 days after transplantation most cells were found lining the ventricular wall. (B) After 4-6 weeks most cells had left the ventricles (V) and populated the corpus callosum (CC), fimbria (fim), internal capsule (i.c.). BrdU+ cells were not found in the striatum (str) or CA region of the hippocampus (hipp). (C) Chains of BrdU+ cells were found in the rostralmigratory stream (RMS). (D) BrdU+ cells in the

periventricular white matter. (E) Higher magnification of D, to show nuclear specific localization of BrdU.

FIG. 37 shows identification of the transplanted cells in the brain by human and neural-lineage specific markers. (A) A typical chain of transplanted cells in the corpus callosum, stained with human specific anti-mitochondrial antibody. The mitochondrial staining (green fluorescence) on Nomarsky background (blue, cell nuclei indicated by asterisk) shows a typical perinuclear localization. (B) Double staining for BrdU (green fluorescence) and human specific anti ribonuclear protein (red fluorescence) shows nuclear co-localization, indicating that BrdU+ cells were indeed of human origin. (C) A GFAP+ ***astrocyte*** (red) from the periventricular region, colabeled with BrdU (green), indicating its origin from the graft. (D) An NG2+ oligodendrocyte progenitor (red) in the periventricular region, co-labeled with BrdU (green). (E) A CNPase+ oligodendrocyte (red) in the corpus callosum, colabeled with BrdU (immunohistochemistry, shown as dark nucleus in Nomarsky). (F) Neuronal processes in the fimbria, stained with a human specific anti-70 kDa neurofilament. (G) A beta III-tubulin+ neuron (green fluorescence) in the olfactory bulb, co-labeled with BrdU (as dark nucleus (arrow) in Nomarsky). Bars=10 mu m. !

ANSWER 29 OF 55 IFIPAT COPYRIGHT 2004 IFI on STN DUPLICATE 8

10124433 IFIPAT;IFIUDB;IFICDB

EMBRYONIC STEM CELLS AND NEURAL PROGENITOR CELLS DERIVED THEREFROM; SUCH AS NEURAL PROGENITOR CELLS CAPABLE OF GIVING RISE TO MATURE SOMATIC CELLS INCLUDING NEURAL CELLS AND/OR GLIAL CELLS RECOGNIZABLE BY EXPRESSION OF SPECIFIC MARKERS

Ben-Hur Tamir (IL); Pera Martin Frederick (AU); Reubinoff Benjamin Eithan (IL)

Unassigned Or Assigned To Individual (68000)

US 2002068045 A1 20020606

US 2001-808382 20010314

AU 2000-6211 20000314

AU 2000-1279 20001106

AU 2001-2920 20010206

US 2002068045 20020606

Utility; Patent Application - First Publication

CHEMICAL

APPLICATION

85

30 Figure(s).

FIG. 1 shows phase contrast micrographs of ES cells and their differentiated progeny. A, inner cell mass three days after plating. B, colony of ES cells. C, higher magnification of an area of an ES cell colony. D, an area of an ES cell colony undergoing spontaneous differentiation during routine passage. E, a colony four days after plating in the absence of a feeder cell layer but in the presence of 2000 units/ml human LIF undergoing differentiation in its periphery. F, neuronal cells in a high density culture. Scale bars: A and C, 25 microns; B and E, 100 microns; D and F, 50 microns.

FIG. 2 shows marker expression in ES cells and their differentiated somatic progeny. A, ES cell colony showing histochemical staining for alkaline phosphatase. B, ES cell colony stained with antibody MC-813-70 recognising the SSEA-4 epitope. C, ES cell colony stained with antibody TRAI-60. D, ES cell colony stained with antibody GCTM-2. E, high density culture, cell body and processes of a cell stained with antineurofilament 68 kDa protein. F, high density culture, cluster of cells and network of processes emanating from them stained with antibody against neural cell adhesion molecule. G, high density culture, cells showing cytoplasmic filaments stained with antibody to muscle actin. H, high density culture, cell showing cytoplasmic filaments stained with antibody to desmin. Scale bars: A, 100 microns; B-D, and F, 200 microns; E, G and H, 50 microns.

FIG. 3 shows RT-PCR analysis of gene expression in ES cells and their differentiated derivatives. All panels show 1.5% agarose gels stained with ethidium bromide. A, expression of Oct-4 and b-actin in ES stem cells and high density cultures. Lane 1, 100 bpDNA ladder. Lane 2, stem cell culture, b-actin. Lane 3, stem cell culture, Oct-4. Lane 4, stem cell culture, PCR for Oct-4 carried out with omission of reverse transcriptase. Lane 5, high density culture, b-actin. Lane 6, high density culture, Oct-4. Lane 7, high density culture, PCR for Oct-4 carried out with omission of reverse transcriptase. b-actin band is 200 bp and Oct-4 band is 320 bp. B, expression of nestin and Pax-6 in neural progenitor cells that were derived from differentiating ES colonies. Left lane, 100 bp DNA ladder; lane 1, b-actin in HX 142 neuroblastoma cell line (positive control for nestin PCR) ; lane 2, b-actin in neural progenitor cells; lane 3, nestin in HX 142 neuroblastoma cell line; lane

4, nestin in neural progenitor cells; lane 5, nestin PCR on same sample as lane 4 without addition of reverse transcriptase; lane 6, Pax-6; lane 7, Pax-6 PCR on same sample as line 6 without addition of reverse transcriptase. Nestin band is 208 bp, Pax-6 is 274 bp. C, expression of glutamic acid decarboxylase in cultures of neurons. Left lane, 100 bp DNA ladder; lane 1, b-actin; lane 2, b-actin PCR on same sample as lane 1 without addition of reverse transcriptase; lane 3, glutamic acid decarboxylase; lane 4 glutamic acid decarboxylase on same sample as lane 3 without addition of reverse transcriptase. Glutamic acid decarboxylase band is 284 bp. D, expression of GABA A alpha 2 receptor. Left lane, 100 bp DNA ladder; lane 1, b-actin; lane 2, GABA A alpha 2 receptor; lane 3, PCR without addition of reverse transcriptase. GABA A alpha 2 receptor subunit band is 471 bp.

FIG. 4 shows histology of differentiated elements found in teratomas formed in the testis of SCID mice following inoculation of HES-1 or HES-2 colonies. A, cartilage and squamous epithelium, HES-2. B, neural rosettes, HES-2. C, ganglion, gland and striated muscle, HES-1. D, bone and cartilage, HES-1. E, glandular epithelium, HES-1. F, ciliated columnar epithelium, HES-1. Scale bars: A-E, 100 microns; F, 50 microns.

FIG. 5 shows phase contrast microscopy and immunochemical analysis of marker expression in neural progenitor cells isolated from differentiating ES cultures. A, phase contrast image of a sphere formed in serum-free medium. B-D, indirect immunofluorescence staining of spheres, 4 hours after plating on adhesive substrate, for N-CAM, nestin, and vimentin respectively. In C and D, cells at the base of the sphere were placed in plane of focus to illustrate filamentous staining; confocal examination revealed that cells throughout the sphere were decorated by both antibodies. Scale bar is 100 microns in all panels.

FIG. 6 shows phase contrast appearance and marker expression in cultures of neurons derived from progenitor cells shown in FIG. 5. A, phase contrast micrograph of differentiated cells emanating from a sphere plated onto adhesive surface. B-H, indirect immunofluorescence microscopy of differentiated cells decorated with antibodies against 200 kDa neurofilament protein (B), 160 kDa neurofilament protein (C), MAP2a+b (D), glutamate (E), synaptophysin (F), glutamic acid decarboxylase (G) and beta-tubulin (H). Scale bars: A, B, 100 microns; C, 200 microns; D, 20 microns; E and F, 10 microns; G, 20 microns; H, 25 microns.

FIG. 7 shows neural precursors proliferating as a monolayer on a plastic tissue culture dish in the presence of EGF and bFGF. These monolayer cultures of proliferating cells were obtained after prolonged cultivation (2-3 weeks) of the spheres in the presence of growth factors without sub-culturing.

FIG. 8 shows phase contrast appearance of a culture consisting of differentiated neural cells.

FIG. 9 shows phase contrast appearance of a sphere that is formed 72 hours after the transfer of a clump of undifferentiated ES cells into serum free medium (Scale bar 100 microns).

FIG. 10 shows linear correlation between the volume of spheres and the number of progenitor cells within a sphere. Spheres of various diameters that were generated from differentiating ES colonies and were propagated for 14-15 weeks were disaggregated into single cell suspension and the number of cells per sphere was counted.

FIG. 11 shows indirect immunofluorescence staining of a sphere, 4 hours after plating on adhesive substrate, for N-CAM. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and propagation of the resulting spheres for 5 passages. (Scale bar 100 microns).

FIG. 12 shows indirect immunofluorescence membranous staining for N-CAM of single cells at the periphery of a sphere 4 hours after plating on adhesive substrate. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and propagation of the resulting spheres for 5 passages. (Scale bar 25 microns).

FIG. 13 shows indirect immunofluorescence staining of a sphere 4 hours after plating on adhesive substrate for the intermediate filament nestin. Cells at the base of the sphere were placed in plane of focus to illustrate filamentous staining. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and propagation of resulting spheres for 5 passages. (Scale bar 25 microns).

FIG. 14 shows indirect immunofluorescence microscopy of a differentiated cell decorated with antibodies against the oligodendrocyte progenitor marker O4. (Scale bar 12.5 microns).

FIG. 15 shows indirect immunofluorescence staining of a sphere 4 hours after plating on adhesive substrate for the intermediate filament vimentin. Cells at the base of the sphere were placed in plane of focus to illustrate filamentous staining. The sphere was generated by direct transfer of undifferentiated ES cells into serum free medium and

propagation of resulting spheres for 7 passages. (Scale bar 25 microns). FIG. 16 shows the growth pattern of spheres that were generated directly from undifferentiated ES cells. Each bar represents the mean (+SD) increment in volume per week of 24 spheres at first to twelve weeks after derivation. A more excessive growth rate is evident during the first 5 weeks.

FIG. 17 shows persistent growth in the volume of spheres along time. Each bar represents the mean (+SD) increment in volume per week of 24 spheres at nine to twenty one weeks after derivation. The spheres were generated from differentiating ES colonies.

FIG. 18 shows linear correlation between the volume of spheres and the number of progenitor cells within a sphere. Spheres of various diameters, that were generated directly from undifferentiated ES cells and were propagated 5-7 weeks, were disaggregated into single cell suspension and the number of cells per sphere was counted.

FIG. 19 shows RT-PCR analysis of gene expression in ES cells (a week after passage) and neural spheres derived from differentiating colonies and directly from undifferentiated ES cell. All panels show 2% agarose gels stained with ethidium bromide. Lanes 1, 2 and 3, Oct-4 in ES cell culture, neural spheres derived from differentiating colonies, neural spheres derived from undifferentiated ES cells. Lane 4, stem cell culture, PCR for Oct-4 carried out with omission of reverse transcriptase. Lanes 5, 6, and 7, nestin in ES cell culture, neural spheres derived from differentiating colonies, neural spheres derived from undifferentiated ES cells. Lane 8, stem cell culture, PCR for nestin carried out with omission of reverse transcriptase. Lanes 9, 10 and 11, Pax-6 in ES cell culture, neural spheres derived from differentiating colonies, neural spheres derived from undifferentiated ES cells. Lane 12, stem cell culture, PCR for Pax-6 carried out with omission of reverse transcriptase. Lane 13, 100 bp DNA ladder. Oct-4 band is 320 bp, nestin is 208 bp and Pax-6 is 274 bp.

FIG. 20 shows indirect immunofluorescence microscopy of differentiated ***astrocyte*** cells decorated with antibody against GFAP. (Scale bar 25 microns).

FIG. 21 shows indirect immunofluorescence microscopy of brain sections of two mice (A and B) 4 weeks after transplantation of human neural precursors prelabeled with BrDU. Cells with a nucleus decorated with anti BrDU (brown stain, black arrow) are evident near the ventricular surface (white arrow indicate mouse unstained nuclei, bar=20 microns).

FIG. 22 shows indirect immunofluorescence microscopy of brain sections of a mice 4 weeks after transplantation of human neural precursors prelabeled with BrDU. Wide spread distribution of transplanted human cells decorated by anti BrDU antibodies is evident in the periventricular areas. The periventricular area in A is demonstrated at a higher magnification in B and C. (Bars=150, 60 and 30 microns in A, B and C).

FIG. 23 shows indirect immunocytochemical microscopy of brain sections of a mice 4 weeks after transplantation of human neural precursors prelabeled with BrDU. The transplanted human cells are migrating along the rostral migratory stream (bar=150 microns).

FIG. 24 shows RT-PCR analysis of gene expression in neural spheres derived from differentiating (A) and undifferentiated (B) ES cells. All panels show 2% agarose gels stained with ethidium bromide. Lanes 1 and 10, 100 bpDNA ladder; Lane 2, CD34; Lane 3, Flk-1; lane 4, HNF-3; lane 5, alfafetoprotein. Lanes 6-9 PCR reaction on the same samples as lanes 2-5 carried out with the omission of reverse transcriptase. CD-34 band is 200 bp, Flk-1 is 199, HNF-3 is 390, AFP is 340 bp.

FIG. 25 shows by RT-PCR analysis the expression of GFAP and the plp gene in differentiated cells from neural spheres derived from differentiating ES cell colonies. The expression of GFAP indicates differentiation into ***astrocytes*** while the presence of both dm-20 and plp transcripts indicate that differentiation into oligodendrocyte cells has occurred. Lanes 2,4,6 and lanes 3,5,7 are from two separate RNA samples from differentiated spheres that were independently derived from ES cells. Lane 1 and 8, 100 bp DNA ladder; Lanes 2 and 4, GFAP; lanes 3 and 5, plp and dm-20; lanes 6 and 7, PCR reaction on the same samples as lanes 3 and 5 carried out with the omission of reverse transcriptase. GFAP band is 383, plp band is 354 bp and dm-20 is 249 bp.

FIG. 26 shows a dark field stereomicroscopic photograph of areas (arrows) destined to give rise to neural precursors in a differentiating ES cell colony 3 weeks after passage (bar=1.6 mm).

FIG. 27 shows indirect immunochemical analysis of marker expression in cultures of neurons derived from progenitor cells that were derived directly from undifferentiated ES cells: A, indirect immunofluorescence microscopy of neurites decorated with antibody against 160 kDa neurofilament protein. B and C, indirect immunofluorescence staining of differentiated cells for MAP2a+b and beta-tubulin III. Scale bars: A 100

microns, B and C 10 microns.
FIG. 28 shows indirect immunochemical analysis of the expression of tyrosine hydroxylase. Neurites (A) and a differentiated cell (B) are decorated with antibodies against tyrosine hydroxylase. Scale bars: 30 microns.

FIG. 29 shows in vivo differentiation into ***astrocyte*** cells of transplanted human neural progenitors prelabeled with BrDU. Donor cells are identified by indirect immunochemical detection of BrDU (dark nuclei, arrows). Dual staining demonstrates donor cells decorated by anti GFAP (orange). Transplanted cells are migrating into the brain parenchyma (white arrow) and are also found in the periventricular zone (dark arrow) (A). A higher magnification of cells that have differentiated into ***astrocytes*** and migrated into the host brain (B).

FIG. 30 shows in vivo differentiation into oligodendrocyte cells of transplanted human neural progenitors prelabeled with BrDU. Donor cells are identified by indirect immunochemical detection of BrDU (dark nuclei, arrows). Dual staining demonstrates donor cells decorated by anti CNPase (orange). !

L4 ANSWER 30 OF 55 USPATFULL on STN
AN 2002:294269 USPATFULL
TI Stem cells of the islets of langerhans and their use in treating diabetes mellitus
IN Habener, Joel F., Newton Centre, MA, UNITED STATES
Zulewski, Henryk, Basel, SWITZERLAND
Thomas, Melissa K., Boston, MA, UNITED STATES
Abraham, Elizabeth J., Quincy, MA, UNITED STATES
Vallejo, Mario, Madrid, SPAIN
Leech, Colin A., Boston, MA, UNITED STATES
PI US 2002164307 A1 20021107
AI US 2001-963875 A1 20010926 (9)
RLI Continuation-in-part of Ser. No. US 2000-731261, filed on 6 Dec 2000, PENDING
PRAI US 1999-169082P 19991206 (60)
US 2000-215109P 20000628 (60)
US 2000-238880P 20001006 (60)
DT Utility
FS APPLICATION
LN.CNT 2587
INCL INCLM: 424/093.700
INCLS: 424/093.210
NCL NCLM: 424/093.700
NCLS: 424/093.210
IC [7]
ICM: A61K048-00
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 31 OF 55 USPATFULL on STN
AN 2002:340143 USPATFULL
TI Multilayer skin or dermal equivalent having a layer containing mesenchymal stem cells
IN Sorrell, J. Michael, Cleveland Heights, OH, United States
Caplan, Arnold I., Cleveland Heights, OH, United States
PA Case Western Reserve University, Cleveland, OH, United States (U.S. corporation)
PI US 6497875 B1 20021224
WO 9741208 19971106
AI US 1998-171445 19981026 (9)
WO 1997-US6760 19970424
19981026 PCT 371 date
PRAI US 1996-16317P 19960426 (60)
DT Utility
FS GRANTED
LN.CNT 1946
INCL INCLM: 424/093.700
INCLS: 435/001.100; 435/174.000; 435/177.000; 435/325.000; 435/366.000; 435/395.000
NCL NCLM: 424/093.700
NCLS: 435/001.100; 435/174.000; 435/177.000; 435/325.000; 435/366.000; 435/395.000
IC [7]
ICM: C12N005-06
ICS: C12N005-08; C12N011-00; C12N011-02
EXF 424/93.7; 435/174; 435/325; 435/395; 435/366; 435/177; 435/1.1
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 32 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
N 2002:524391 BIOSIS
N PREV200200524391
I Large-scale sources of neural stem cells.
U Gottlieb, David I. [Reprint author]
S Department of Anatomy and Neurobiology, Washington University School of
Medicine, Saint Louis, MO, USA
gottlied@pcg.wustl.edu
O Cowan, W. Maxwell [Editor]; Hyman, Steven E. [Editor]; Jessell, Thomas M.
[Editor]; Stevens, Charles F. [Editor]. Annu. Rev. Neurosci., (2002) pp.
381-407. Annual Review of Neuroscience. print.
Publisher: Annual Reviews, 4139 El Camino Way, Palo Alto, CA, 94303-0139,
USA. Series: Annual Review of Neuroscience.
CODEN: ARNSD5. ISSN: 0147-006X. ISBN: 0-8243-2425-0 (cloth).
T Book
A Book; (Book Chapter)
D English
Entered STN: 9 Oct 2002
Last Updated on STN: 9 Oct 2002

4 ANSWER 33 OF 55 LIFESCI COPYRIGHT 2004 CSA on STN
N 2003:32704 LIFESCI
I Radial Glial Cells as Neuronal Precursors: The Next Generation?
U Gregg, C.T.; Chojnacki, A.K.; Weiss, S.*
S HSC 2164-3330 Hospital Dr. NW, Calgary, AB, T2N 4N1, Canada; E-mail:
weiss@ucalgary.ca
O Journal of Neuroscience Research [J. Neurosci. Res.], (20020915) vol. 69,
no. 6, pp. 708-713. Special issue: Stem cells..
ISSN: 0360-4012.
T Journal
C General Review
S N3
A English
L English

4 ANSWER 34 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 9
N 2002:448773 BIOSIS
N PREV200200448773
I Neural stem cells.
U Kennea, Nigel L.; Mehmet, Huseyin [Reprint author]
S Weston Laboratory, Institute of Reproductive and Developmental Biology,
Division of Paediatrics, Obstetrics and Gynaecology, Imperial College of
Science, Technology and Medicine, Du Cane Road, Hammersmith Hospital
Campus, London, W12 0NN, UK
h.mehmet@ic.ac.uk
O Journal of Pathology, (July, 2002) vol. 197, No. 4, pp. 536-550. print.
CODEN: JPTLAS. ISSN: 0022-3417.
T Article
A General Review; (Literature Review)
D English
Entered STN: 21 Aug 2002
Last Updated on STN: 21 Aug 2002

4 ANSWER 35 OF 55 CANCERLIT on STN DUPLICATE 10
N 2002143188 CANCERLIT
N 21917077 PubMed ID: 11921204
I Isolation of a glial-restricted tripotential cell line from embryonic
U spinal cord cultures.
S Wu Yuan Yuan; Mujtaba Tahmina; Han Steve S W; Fischer Itzhak; Rao Mahendra
S Department of Neurobiology and Anatomy, University of Utah School of
Medicine, Salt Lake City, Utah, USA.
O GLIA, (2002 Apr 1) 38 (1) 65-79.
Journal code: 8806785. ISSN: 0894-1491.
Y United States
T Journal; Article; (JOURNAL ARTICLE)
A English
S MEDLINE; Priority Journals
S MEDLINE 2002187447
M 200205
D Entered STN: 20020726
Last Updated on STN: 20020726

4 ANSWER 36 OF 55 Elsevier BIOBASE COPYRIGHT 2004 Elsevier Science B.V.
on STN

2002070328 ESBIODBASE

Alternative sources of neurons and glia from somatic stem cells

Torrente Y.; Belicchi M.; Pisati F.; Pagano S.F.; Fortunato F.; Sironi

M.; Grazia D'Angelo M.; Parati E.A.; Scarlato G.; Bresolin N.

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Cell Transplantation, (2002), 11/1 (25-34), 35 reference(s)

CODEN: CTAE8 ISSN: 0963-6897

Journal; Article

United States

English

English

ANSWER 37 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

2003:367607 BIOSIS

PREV200300367607

Transdifferentiation of Human Haemopoietic Lineage Negative Bone
Marrow Cells to Neural Cells by Cytokines and Chemical Inducing Agents.

Tao, Helen [Reprint Author]; Rao, Renuka S. [Reprint Author]; Ma, David D.

F. [Reprint Author]

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Vincent's Hospital, Sydney, NSW, Australia

Blood, (November 16 2002) Vol. 100, No. 11, pp. Abstract No. 4123. print.

Meeting Info.: 44th Annual Meeting of the American Society of Hematology.

Philadelphia, PA, USA. December 06-10, 2002. American Society of
Hematology.

CODEN: BLOOAW. ISSN: 0006-4971.

Conference; (Meeting)

Conference; Abstract; (Meeting Abstract)

Conference; (Meeting Poster)

English

Entered STN: 13 Aug 2003

Last Updated on STN: 13 Aug 2003

ANSWER 38 OF 55 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN

DUPLICATE 11

2002-06780 BIOTECHDS

In vitro ***transdifferentiation*** of mammalian cells from glial
cell type to neurons, oligodendrocytes and ***astrocytes***,
comprises culturing the cells to form group of cells and exposing the
cells to a growth factor;

human fetal and adult mammal ***astrocyte*** and stem cell
transactivation in a culture vessel for the production of multipotent
cell for xenotransplantation, Alzheimer disease, Parkinson disease,
stroke recovery, brain, spinalcord damage therapy

SALIN-NORDSTROM T H

SPINAL CORD SOC

WO 2001095861 20 Dec 2001

WO 2000-US40971 16 Jun 2000

US 2000-644498 23 Aug 2000

Patent

English

WPI: 2002-139690 [18]

ANSWER 39 OF 55 USPATFULL on STN

2001:218003 USPATFULL

Stem cells of the islets of langerhans and their use in treating
diabetes mellitus

Habener, Joel E., Newton Center, MA, United States

Zulewski, Henryk, Geneva, Switzerland

Abraham, Elizabeth J., Quincy, MA, United States

Thomas, Melissa K., Boston, MA, United States

Vallejo, Mario, Madrid, Spain

US 2001046489 A1 20011129

US 2000-731261 A1 20001206 (9)

US 1999-169082P 19991206 (60)

US 2000-215109P 20000628 (60)

US 2000-238880P 20001006 (60)

Utility

APPLICATION

2114

INCLM: 424/093.210

INCLS: 514/009.000; 424/152.100; 435/366.000

NCLM: 424/093.210

NCLS: 514/009.000; 424/152.100; 435/366.000

C [7]
ICM: A61K048-00
ICS: C12N005-08; A61K039-395
AS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 40 OF 55 USPATFULL on STN
N 2001:165614 USPATFULL
I Stem cells and their use in transplantation
N Moss, Peter Ian, London, Great Britain
Walters, David Martin, London, Great Britain
Pointer, Graham, London, Great Britain
I US 2001024824 A1 20010927
I US 2000-731255 A1 20001206 (9)
RAI US 1999-169082P 19991206 (60)
US 2000-215109P 20000628 (60)
US 2000-238880P 20001006 (60)
T Utility
S APPLICATION
N.CNT 2446
NCL INCLM: 435/366.000
INCLS: 424/093.700
CL NCLM: 435/366.000
NCLS: 424/093.700
C [7]
ICM: C12N005-08
ICS: A61K045-00
AS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 41 OF 55 USPATFULL on STN
N 2001:220886 USPATFULL
I Pancreatic progenitor cells, methods and uses related thereto
N Fung, Brenda, Belmont, MA, United States
Pang, Kevin, Belmont, MA, United States
Kagan, David, Brighton, MA, United States
A Curis, Inc., Cambridge, MA, United States (U.S. corporation)
I US 6326201 B1 20011204
I US 2000-499362 20000210 (9)
RAI US 1999-119576P 19990210 (60)
US 1999-142305P 19990702 (60)
US 1999-171338P 19991221 (60)
T Utility
S GRANTED
N.CNT 2646
NCL INCLM: 435/377.000
INCLS: 435/325.000; 435/371.000; 435/378.000
CL NCLM: 435/377.000
NCLS: 435/325.000; 435/371.000; 435/378.000
C [7]
ICM: C12N005-02
ICS: C12N005-00; C12N005-08
435/325; 435/366; 435/375; 435/378; 435/379; 435/381; 435/377; 435/371
AS INDEXING IS AVAILABLE FOR THIS PATENT.

4 ANSWER 42 OF 55 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
N 2001-582442 [65] WPIDS
NC C2001-172762
I Preparing undifferentiated human embryonic stem cells for differentiation
into neural progenitor cells, involves culturing inner cell mass removed
in vitro fertilized human embryo under specific conditions.
C B04 D16
N HUR-BEN, T; PERA, M F; REUBINOFF, B E; BEN-HUR, T
A (HADA-N) HADASIT MEDICAL RES SERVICES & DEV; (REUB-I) REUBINOFF B E;
(MONU) UNIV MONASH; (UYSI-N) UNIV SINGAPORE NAT; (ESCE-N) ES CELL INT PTE
LTD; (BENH-I) BEN-HUR T; (PERA-I) PERA M F; (REUB-N) REUBINOFF
YC 95
I WO 2001068815 A1 20010920 (200165)* EN 125 C12N005-08
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001040361 A 20010924 (200208) C12N005-08
US 2002068045 A1 20020606 (200241) A61K045-00
US 2002164308 A1 20021107 (200275) C12N005-08
EP 1263932 A1 20021211 (200301) EN C12N005-08

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI TR

EP 1302536 A2 20030416 (200328)# EN C12N005-08

R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC
MK NL PT RO SE SI SK TR

CA 2406610 A1 20030404 (200336)# EN C12N005-08

JP 2004500103 W 20040108 (200410) 181 C12N005-06

ADT WO 2001068815 A1 WO 2001-AU278 20010314; AU 2001040361 A AU 2001-40361
20010314; US 2002068045 A1 US 2001-808382 20010314; US 2002164308 A1 CIP
of US 2001-808382 20010314, US 2001-970543 20011004; EP 1263932 A1 EP
2001-911277 20010314, WO 2001-AU278 20010314; EP 1302536 A2 EP 2002-256974
20021004; CA 2406610 A1 CA 2002-2406610 20021003; JP 2004500103 W JP
2001-567299 20010314, WO 2001-AU278 20010314

FDT AU 2001040361 A Based on WO 2001068815; EP 1263932 A1 Based on WO
2001068815; JP 2004500103 W Based on WO 2001068815

PRAI AU 2001-2920 20010206; AU 2000-6211 20000314;
AU 2000-1279 20001106; EP 2002-256974 20021004;
CA 2002-2406610 20021003

IC ICM A61K045-00; C12N005-06; C12N005-08
ICS A61K035-28; A61K035-30; A61K048-00; A61P009-00; A61P017-02;
A61P025-00; A61P025-28; A61P037-00; A61P043-00; C12N005-10

L4 ANSWER 43 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
AN 2001:864772 SCISEARCH
GA The Genuine Article (R) Number: 484WF
TI Neural stem cells
AU Price J (Reprint); Williams B P
CS Univ London Kings Coll, Inst Psychiat, DeCrespigny Pk, Denmark Hill,
London SE5 8AF, England (Reprint); Univ London Kings Coll, Inst Psychiat,
London SE5 8AF, England
CYA England
SO CURRENT OPINION IN NEUROBIOLOGY, (OCT 2001) Vol. 11, No. 5, pp. 564-567.
Publisher: CURRENT BIOLOGY LTD, 84 THEOBALDS RD, LONDON WC1X 8RR, ENGLAND.
ISSN: 0959-4388.
DT General Review; Journal
LA English
REC Reference Count: 27
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L4 ANSWER 44 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
AN 2001:486851 BIOSIS
DN PREV200100486851
TI Neural trans-differentiation of plastic adherent and non-adherent bone
marrow stem cells.
AU Oyelese, A. A. [Reprint author]; Palmer, T. D. [Reprint author]
CS Neurosurgery, Stanford University Medical Center, Stanford, CA, USA
SO Society for Neuroscience Abstracts, (2001) Vol. 27, No. 1, pp. 346. print.
Meeting Info.: 31st Annual Meeting of the Society for Neuroscience. San
Diego, California, USA. November 10-15, 2001.
ISSN: 0190-5295.
DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 17 Oct 2001
Last Updated on STN: 23 Feb 2002

L4 ANSWER 45 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
AN 2001:421880 SCISEARCH
GA The Genuine Article (R) Number: 433UR
TI The neural stem cells and their ***transdifferentiation*** capacity
AU Vescovi A L (Reprint); Galli R; Gritti A
CS Hosp San Raffaele, DIBIT, Stem Cell Res Inst, I-20132 Milan, Italy
(Reprint)
CYA Italy
SO BIOMEDICINE & PHARMACOTHERAPY, (MAY 2001) Vol. 55, No. 4, pp. 201-205.
Publisher: EDITIONS SCIENTIFIQUES MEDICALES ELSEVIER, 23 RUE LINOIS, 75724
PARIS CEDEX 15, FRANCE.
ISSN: 0753-3322.
DT Article; Journal
LA English
REC Reference Count: 29
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L4 ANSWER 46 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
AN 2002:253803 SCISEARCH
GA The Genuine Article (R) Number: 531EH

TI Alternative sources of neurons and glia from somatic stem cells
 AU Torrente Y; Belicchi M; Pisati F; Pagano S F; Fortunato F; Sironi M;
 D'Angelo M G; Parati E A; Scarlato G; Bresolin N (Reprint)
 CS Univ Milan, Inst Clin Neurol, Osped Policlin, Padigl Ponti, Via Francesco
 Sforza 35, I-20122 Milan, Italy (Reprint); IRCCS Osped Maggiore Policlin,
 Milan, Italy; Natl Neurol Inst C Besta, Neuropharmacol Lab, Milan, Italy;
 Ctr Dino Ferrari, Inst Clin Neurol, Milan, Italy; IRCCS Eugenio Medea,
 Bosisio Parini, Italy
 CYA Italy
 SO CELL TRANSPLANTATION, (JAN 2001) Vol. 11, No. 1, pp. 25-34.
 Publisher: COGNIZANT COMMUNICATION CORP, 3 HARTSDALE ROAD, ELMSFORD, NY
 10523-3701 USA.
 ISSN: 0963-6897.
 DT Article; Journal
 LA English
 REC Reference Count: 35
 ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L4 ANSWER 47 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:84645 CAPLUS
 DN 136:83103
 TI Differentiation control of neural stem cells
 AU Kondo, Toru
 CS Embryol. Med. Res. Cent., Kumamoto Univ., Japan
 SO Ensho to Men'eki (2001), Volume Date 2002, 10(1), 19-24
 CODEN: ENMEFA; ISSN: 0918-8371
 PB Sentan Igakusha
 DT Journal; General Review
 LA Japanese

L4 ANSWER 48 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 12
 AN 2000:464024 CAPLUS
 DN 133:100438
 TI ***Transdifferentiation*** of non-neuronal cells into neurons by
 transfection with cDNA encoding a neurogenic transcription factor
 responsible for neuronal differentiation
 IN Levesque, Michel F.; Neuman, Thomas
 PA Cedars-Sinai Medical Center, USA
 SO U.S., 27 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6087168	A	20000711	US 1999-234332	19990120
	EP 1022331	A2	20000726	EP 2000-101100	20000120
	EP 1022331	A3	20020522		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	EP 1022330	A2	20000726	EP 2000-101101	20000120
	EP 1022330	A3	20020522		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2000295987	A2	20001024	JP 2000-48291	20000120
	JP 2000295997	A2	20001024	JP 2000-48293	20000120
PRAI	US 1999-234332	A	19990120		
RE.CNT	19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT				

L4 ANSWER 49 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 DUPLICATE 13
 AN 2000:445799 BIOSIS
 DN PREV200000445799
 TI Radial glia phenotype: Origin, regulation, and
 transdifferentiation
 AU Chanas-Sacre, Grazyna; Rogister, Bernard; Moonen, Gustave; Leprince,
 Pierre [Reprint author]
 CS Institut Leon Fredericq, Universite de Liege, Place Delcour 17, B 4020,
 Liege, Belgium
 SO Journal of Neuroscience Research, (August 15, 2000) Vol. 61, No. 4, pp.
 357-363. print.
 CODEN: JNREDK. ISSN: 0360-4012.
 DT Article
 General Review; (Literature Review)
 LA English

ED Entered STN: 18 Oct 2000
Last Updated on STN: 10 Jan 2002

L4 ANSWER 50 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
AN 2001:97219 BIOSIS
DN PREV200100097219
TI ***Transdifferentiation*** of neural precursor cells after blastocyst
implantation.
AU Pipia, G. G. [Reprint author]; Low, H. P.; Turner, T.; McAuliffe, C.;
Salmonsens, R.; Quesenberry, P. J.; Schwartz, W. J.; Litofsky, N. S.; Ross,
A.; Recht, L.; Jones, S.
CS UMass Medical School, Worcester, MA, USA
SO Society for Neuroscience Abstracts, (2000) Vol. 26, No. 1-2, pp. Abstract
No.-415.13. print.
Meeting Info.: 30th Annual Meeting of the Society of Neuroscience. New
Orleans, LA, USA. November 04-09, 2000. Society for Neuroscience.
ISSN: 0190-5295.
DT Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 21 Feb 2001
Last Updated on STN: 15 Feb 2002

L4 ANSWER 51 OF 55 Elsevier BIOBASE COPYRIGHT 2004 Elsevier Science B.V.
on STN DUPLICATE
AN 1997172785 ESBIOWASE
TI Basic fibroblast growth factor (FGF-2) induced
transdifferentiation of retinal pigment epithelium: Generation of
retinal neurons and glia
AU Sakaguchi D.S.; Janick L.M.; Reh T.A.
CS D.S. Sakaguchi, Department of Zoology and Genetics, 339 Science II, Iowa
State University, Ames, IA 50011, United States.
E-mail: dssakagu@iastate.edu
SO Developmental Dynamics, (1997), 209/4 (387-398), 48 reference(s)
CODEN: DEDYEI ISSN: 1058-8388
DT Journal; Article
CY United States
LA English
SL English

L4 ANSWER 52 OF 55 Elsevier BIOBASE COPYRIGHT 2004 Elsevier Science B.V.
on STN DUPLICATE
AN 1997028694 ESBIOWASE
TI Induction of various blood-brain barrier properties in non-neural
endothelial cells by close apposition to co-cultured ***astrocytes***
AU Hayashi Y.; Nomura M.; Yamagishi S.-I.; Harada S.-I.; Yamashita J.;
Yamamoto H.
CS Dr. H. Yamamoto, Department of Biochemistry, Kanazawa Univ. School of
Medicine, 13-1 Takara-machi, Kanazawa 920, Japan.
SO GLIA, (1997), 19/1 (13-26), 57 reference(s)
CODEN: GLIAEJ ISSN: 0894-1491
DT Journal; Article
CY United States
LA English
SL English

L4 ANSWER 53 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
AN 95:474436 SCISEARCH
GA The Genuine Article (R) Number: RG941
TI ADRENAL CHROMAFFIN CELLS TRANSDIFFERENTIATE IN RESPONSE TO BASIC
FIBROBLAST GROWTH-FACTOR AND SHOW DIRECTED OUTGROWTH TO A NERVE
GROWTH-FACTOR SOURCE IN-VIVO
AU CHALMERS G R (Reprint); FISHER L J; NIIJIMA K; PATTERSON P H; GAGE F H
CS SIMON FRASER UNIV, DEPT KINESIOLOGY, BURNABY, BC V5A 1S6, CANADA (Reprint);
UNIV CALIF SAN DIEGO, DEPT NEUROSCI, LA JOLLA, CA, 92093; CALTECH, DIV
BIOL, PASADENA, CA, 91125
CYA CANADA; USA
SO EXPERIMENTAL NEUROLOGY, (MAY 1995) Vol. 133, No. 1, pp. 32-42.
ISSN: 0014-4886.
DT Article; Journal
FS LIFE
LA ENGLISH
REC Reference Count: 43
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L4 ANSWER 54 OF 55 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

DUPLICATE 16
AN 1994:502823 BIOSIS
DN PREV199497515823
TI Nerve growth factor released by transgenic ***astrocytes*** enhances
the function of adrenal chromaffin cell grafts in a rat model of
Parkinson's disease.
AU Cunningham, Lee Anna [Reprint author]; Short, M. Priscilla; Breakefield,
CS Xandra O.; Bohn, Martha C.
SO Dep. Pharmacol., Univ. New Mexico Sch. Med., BMSB 145, Albuquerque, NM
87131, USA
Brain Research, (1994) vol. 658, No. 1-2, pp. 219-231.
CODEN: BRREAP. ISSN: 0006-8993.
DT Article
LA English
ED Entered STN: 28 Nov 1994
Last Updated on STN: 28 Nov 1994

L4 ANSWER 55 OF 55 CANCERLIT on STN DUPLICATE 17
AN 80656405 CANCERLIT
DN 80656405
TI ' ***TRANSDIFFERENTIATION*** ' OF C6 GLIAL CELLS IN CULTURE.
AU Parker K K; Norenberg M D; Vernadakis A
CS Dept. Pharmacology, Univ. Colorado, Sch. Medicine, Denver, CO, 80262.
SO Science, (1980) 208 (4440) 179-181.
ISSN: 0036-8075.
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Institute for Cell and Developmental Biology
EM 198006
ED Entered STN: 19941107
Last Updated on STN: 19970509
STN INTERNATIONAL LOGOFF AT 17:46:01 ON 02 AUG 2004